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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Utility Patent Application

PINE CONE COLLECTION TOOL

Be it known that we, Douglas Seefeldt and Debra Seefeldt, residents of Neuces County in the State of Texas, whose Post Office address is 15814 Portillo Drive, Corpus Christi, Texas 78418; Milton Seefeldt a resident of Marion County in the State of Oregon, whose Post Office address is 12730 Finlay Road NE, Silverton, Oregon 97381; and Jeff Bendio a resident of Spokane County in the State of Washington, whose Post Office address is 13903 East Sprague, Spokane, Washington 99216, all of whom are residents of the United States, have each jointly invented all of the certain new and useful improvements in PINE CONE COLLECTING TOOL of which the following is a specification and for which we pray the issuance of **utility Letters Patent.**

II. BACKGROUND OF INVENTION

IIA. RELATED APPLICATIONS

There are no applications related hereto heretofore filed in this or in any foreign country by any of the instant inventors acting individually or in any combination.

IIB. FIELD OF INVENTION

This invention relates generally to receptacles with means to gather and store a product and more particularly to a tubular receptacle having a resiliently deformable entry structure at its lower end to allow ingress of pine cones therethrough and prevent egress therefrom.

IIC. BACKGROUND AND DESCRIPTION OF PRIOR ART

Coniferous trees of the order *Coniferales* are widely distributed especially through the temperate zones of the earth and such plants are often used for ornamentation and landscaping in cultivated habitable areas. These plants in their ordinary life cycle drop cones during a substantial portion of each calendar year and in general it is desired that these cones be collected and removed from cultivated areas both by reason of the aesthetics involved and the impediments that such cones present to future cultivation

if they remain in place. In general in smaller areas such cones heretofore have been collected for removal by direct manual means of collection with the collector's hands or sometimes as aided by hand tools such as a rake to bring a plurality of such cones into a collection area where the plurality may be picked up individually by hand or moved into some type a container. In larger areas fallen pine cones have sometimes been collected by use of mechanical devices such a mechanized rakes, rotary brushes or the like. Such mechanized devices, however, are sufficiently costly to make them economically infeasible for the owners of smaller parcels of property and oftentimes such mechanisms are not operative within the physical bounds and obstacles of smaller parcels of property or over topographic features oftentimes present in such parcels.

The instant invention provides a hand manipulable tool, of simple and economic construction for use in picking up and storing a plurality of fallen pine cones, that may be operated by a user while maintaining a standing position and without direct manual contact with the pine cones.

Pine cones comprise a plurality of ovule-bearing or

pollen-bearing scales or bracts in trees of the pine family (genus *Pinus* of the *Pinaceae* family) or in cycads (family cycadacene). The size and configuration of pine cones vary widely with major dimensions ranging upwardly to twelve inches or more and minor dimensions, especially in smaller cones, often approaching the major dimensions to produce configurations ranging from a near spherical-like shape ranging through oblate spheroids and elongate curvilinear conics. Pine cones also vary widely in their density and both the density and configuration of cones commonly changes through different periods of their life cycle, whether attached to a tree or having fallen therefrom. For a tool to be useful in collecting pine cones and have any economic viability for use in the United States it must be usable with a wide variety of cones of varying dimensions and configurations there present.

The scales and bracts of pine cones are commonly quite hard and rigid when and after the cones have dropped and the configuration of many bracteal types is somewhat triangular with the apex of the triangle extending outwardly and terminating in a sharp thorn-like end. By reason of this structure it is desirable that a tool for

pine cone collection operate in a fashion that does not require direct manual contact or manipulation of the cone by a user to prevent injury and discomfort.

It is further desirable in a pine cone collecting tool that the tool provide a containment structure wherein a plurality of collected pine cones may be accumulated and stored before having to empty the tool for reuse. For practical usability the containment chamber must also be easily accessible and manipulable to allow the emptying of stored pine cones again preferably without any manual contact by a user.

Heretofore various hand tools designed and used primarily for purposes other than the collection of pine cones have been used for pine cone collection, but it is not known that any tools heretofore known have been specially designed for pine cone collection. Long handled tools of a grasping type having jaws pivotally movable toward and away from each other have been used for pine cone collection but those tools do not necessarily well grasp a pine cone, are not easily manipulable to so do and do not provide any means for storing a plurality of collected pine cones for deposition at a future time.

Various sweeping or raking type hand tools have been used to amass a plurality of pine cones for collection but these tools again provide no storage facility for collected cones, require the use of some separable auxiliary storage member and often require the user to move from a standing position to place the amassed cones in a storage member. Various tube or chamber type devices having an orifice structure that passes objects only for ingress and prevent egress of contained objects have heretofore been known, but in general such devices have been designed for specific objects generally having uniform predetermined size and configurations such as collection devices for golf balls, tennis balls, baseballs and the like. These devices have often allowed operation without a user moving from a standing posture but they are not usefully operable to pick up pine cones of substantially varying shapes and sizes as such devices generally have no means for picking up variously configured objects such as pine cones. If pine cones should pass into their storage elements there is no means to surely prevent their egress.

The instant invention seeks to resolve these problems by providing an elongate tubular tool with a particular

entry structure about its lower orifice providing a releasably attachable annulus supporting a plurality of radially inwardly extending circumferentially spaced finger elements that are formed of resiliently deformable sheet material that has a retentent memory that operates quite rapidly to return the finger structures to a normal null configuration after deformation. The finger structures may have a slightly arcuate axially inward curvature which aids in maintaining a pine cone beneath the entry structure. Both any curvature of the entry structure and the peripheral shape of the split finger elements operate synergistically during the collecting process to move a pine cone into a position relative to the entry structure that provides a much higher probability of entry of the pine cone through the entry structure and its retention in the tool than entry and retaining structures of devices used to collect objects of predetermined standardized size and configuration.

Our invention does not reside in any one of the aforesaid features individually but rather in the synergistic combination of all of the structures of our tool that necessarily give rise to the functions flowing

therefrom as hereinafter specified and claimed.

III. SUMMARY OF INVENTION

Our tool in general provides a rigid cylindrically tubular body having a first upper end and second spacedly adjacent lower end defining first fastening means. The upper portion of the body spacedly below its upper orifice preferably carries one or more manipulating handles to aid manual manipulation and carriage of the tool. The second lower end portion of the body carries an entry structure comprising a cap-like member having an annular peripheral rim defining second connecting means to releasably interconnect the entry structure with the first connecting means of the lower end portion of the body. The peripheral rim structurally carries preferably three radially inwardly extending split finger elements that extend inwardly to a point spacedly adjacent the axis of the peripheral rim to leave a void about the inner end portions of the fingers that communicate with voids between the fingers. The finger elements are formed of resiliently deformable sheet material having a retentent memory that is operative within a relatively short period of time such as various of the polymeric or resinous plastic of modern day commerce.

In operation the assembled tool in vertical orientation is positioned over a pine cone to be collected with the pine cone immediately beneath the lower surface of the entry structure. Force is applied by a user to move the tool downwardly upon the subject cone. As this occurs the entry structure fingers will deform upwardly toward the tool body to cause the subject cone to pass upwardly into the tool body channel. Upon such passage the fingers will then assume their previously existing null mode by reason of their retentent memory. A plurality of pine cones may be collected in similar fashion and will displace previously collected cones upwardly within the chamber defined by the body to ultimately allow dumping through the open upper end of the body by appropriate manipulation by a user.

In providing such a device it is:

a principal object is to provide a pine cone collecting tool specifically designed for that purpose to allow collection of pine cones of a wide ranging sizes and shapes.

A further object is to provide such a tool with an elongate tubular body of substantial length such that the

tool may be manipulated manually by a user to collect pine cones while remaining in a standing posture.

A further object is to provide such a tool having an open upper channel orifice that permits simple and easy dumping of pine cones contained in the body channel by tipping the tool with its normally upper end downwardly over a desired deposition site to allow removal of contained cones by action of gravity.

A further object is to provide such a tool having a releasably carried entry structure at the lower end of the body that partially covers the lower entrance of the body to allow ingress of pine cones through the entry structure and into the body but prevents egress of cones carried in the body channel back through the entry structure.

A still further object is to provide such entry structure having a peripheral annulus with preferably three or four circumferentially spaced split fingers extending radially inwardly therefrom to positions spacedly adjacent from each other to define a central void between finger ends communicating with voids between each adjacent pair of the fingers.

A further object is to form such finger structures of

resiliently deformable sheet material having retentent memory so that the fingers may be deformed to allow ingress of pine cones therethrough and into the body channel by reason of resilient deformation but prevent egress of cones from the body channel by reason of retentent memory.

A still further object is to provide such an entry structure wherein the resilient fingers may be angulated axially inward relative to the tubular body to aid in positioning and maintaining a pine cone beneath the entry structure.

A still further object is to provide such a tool that is of new and novel design, of rugged and durable nature, of simple and economic manufacture and one that is otherwise well suited to the uses and purposes for which it is intended.

Other and further objects of our invention will appear from the following specification and accompanying drawings which form a part hereof. In carrying out the objects of the invention, however, it is be understood that its features are susceptible to change in design and structural arrangement with only one preferred and practical embodiment being illustrated in the accompanying drawings

as is required.

IV. DESCRIPTION OF DRAWINGS

In the accompanying drawings which form a part hereof and wherein like numbers of reference refer to similar parts throughout:

Figure 1 is an orthographic front and right side view of our cone collecting tool.

Figure 2 is an expanded and partially cutaway orthographic front elevational view of the tool of Figure 1.

Figure 3 is an enlarged isometric view of one of the manipulating handles of the tool of Figure 1.

Figure 4 is a medial cross-sectional view of the handle of Figure 3, taken on the line 4-4 thereon in the direction indicated by the arrows.

Figure 5 is an isometric view of the entry structure of the tool of Figure 1, taken from the inside looking in an outward direction.

Figure 6 is an isometric view of the entry structure of the tool of Figure 1 looking inwardly toward the tool body.

Figure 7 is an enlarged orthographic bottom view of the entry structure of Figure 6.

Figure 8 is a diametrical cross-sectional view to the entry structure of Figure 7, taken on the line 8-8 thereon in the direction indicated by the arrows.

V. DESCRIPTION OF THE PREFERRED EMBODIMENT

Our pine cone collecting tool in general comprises elongate tubular body **10** carrying at least one manipulating handle **11** axially inwardly from its upper end and releasably carrying cap-like entry structure **12** at its lower end.

Body **10** provides elongate right circular cylindrical tube **13** defining medial channel **14** extending from upper end portion **15** to lower end portion **16**. The lower end portion **16** of tube **13** defines fastening means **17** in the instance illustrated in Figure 2 comprising external threads to cooperate with fastening means defined by entry structure **12** to positionally maintain the entry structure **12** on the lower end portion of cylindrical body tube **13**, preferably in a releasable type interconnection.

Cylindrical tube **13** is formed of some rigid durable material that is of light weight to aid manipulation of the tool, preferably such as polymeric or resinous plastic. For use with a maximum number of pine cones of conifers prevalent in the United States the cylindrical tube **13** should have a relatively thin circumferential wall with an external diameter of approximately five inches and a length

varying from approximately thirty-six to forty-eight inches. This preferred configuration is not essential to the operability of the tool and may vary to accommodate particular conditions of use and physical characteristics of users.

Manipulating handles **11** as illustrated in Figures 3 and 4 are two in number and of a common U-shaped type. The handles **11** provide grasping back **18** perpendicularly projecting legs **19** each having fastening brackets **20** extending perpendicularly from the outer end portion of each leg **19**. In the instance illustrated each fastening bracket defines medial hole **21** to receive nut/bolt fastener **22** therethrough to attach the handles to cylindrical tube **13**. Spacedly opposed pairs of fastening holes (not shown) are defined in cylindrical tube **13** inwardly adjacent upper end portion **15** of cylindrical tube **13** with the same spacing as holes **21** in fastening brackets **20** of the manipulating handles **11** to releasably fasten those handles in vertical orientation and diametrically opposed positions on the upper portion **15** of cylindrical tube **13**, as illustrated in Figures 1 and 2.

The particular manipulating handle structures

illustrated are not essential to the operation of our tool but do make tool operation and manipulation more easy. Various other known types of handles may be substituted for use with the tool and the handles may have varying orientation and positioning in the upper part of the tool. The tool is operative without any handle structures at all but in that configuration the tool may not be as easily manipulated and used as in a configuration providing handles. Entry structure **12** is a cap-like member formed by circularly annular peripheral rim **24** structurally carrying radially inwardly extending fingers **25**. The inner surface of rim **24** has a diameter slighter greater than the outer diameter of cylindrical tube **13** so that the rim may fit over and about the lower end portion **16** of the cylinder **13** to allow fastening without narrowing the internal diameter of medial channel **14** of the cylindrical tube **13**. The upper inner surface of rim **24** defines fastening means **26**, in the instance illustrated comprising threads, to releasably fastenably interconnect with fastening means **17** defined by lower end portion **16** of cylindrical tube **13**.

Fingers **25** in the instance illustrated in Figures 7 and 8 are three in number and of a somewhat truncated

triangular configuration with corners and edges filleted. Each finger **25** is equally spaced about the inner periphery of rim **24** and is structurally supported thereby. Structural support may be created by reason of unitary formation of the fingers and rim or known structural joinder methods. If desired, the fingers may be joined by a separate finger rim (not shown) so that they may be removably attached to rim **24** to allow replacement if desired.

Each finger defines a radially oriented medial slot **27** and this slot in its radially outer end portion terminates in bulbous enlargement **27a** to allow more flexibility of each opposed portion of the fingers **25** and prevent breakage and cracking of the finger material in its radially outer portion. The fingers **25** are configured and circumferentially spaced about rim **24** such that the circumferential space between fingers is at least equal to or greater than the circumferential space occupied by the base of each finger **25** at the point of its attachment to rim **24** to create somewhat angularly shaped spaces **28** between each finger. The radially extension of inner end portions **25a** of each finger is spacedly distant from the

center of rim **24** to create a medial space **29** between inner ends of fingers of **25a**. With this structure then the spaces **28** between fingers **25** and the medial space **29** between the end portions **25a** of the fingers join with each other to form a clover leaf type orifice **28,29** within the inner periphery of rim **24**.

The fingers **25** may be coplanar in a plane that is perpendicular to the axis of rim **24** and body **10** or the fingers **25** may be somewhat angulated in a direction toward body **10** when rim **24** is in position thereon, as shown in the cross-sectional view of Figure 8. If fingers **25** are angulated, this creates an indentation in the medial portion of the entry structure which makes it easier for a user to center a pine cone to be operated upon beneath the orifice **28,29** and may also make it easier to manipulate the tool to cause a pine cone to enter through the orifice **28, 29**. If the fingers **25** are angulated the angulation may not be too great, preferably not more than ten to fifteen degrees, or the angulation may hinder the operation of the tool in picking up a pine cone beneath the entry structure by causing downward force on body **10** as hereafter described.

Fingers **25** must be formed of some resiliently deformable material having a retentent memory such as to be operative in a reasonably short period of time to return the fingers **25** to their null mode after deformation. The material of preference is a polymeric or resinous plastic in the form sheet material that may be configured as hereinbefore specified. Common plastics such as polyethylene, polypropylene and polyurethane are suitable to fulfill this purpose. The configuration of the fingers **25**, both as to periphery and thickness, may have to be somewhat regulated to a particular plastic to produce the desired functions of the entry structure **12**. It is possible that the fingers **25** could be formed from quite thin sheet metal of high elasticity, such as stainless steel and that material is within the ambit and scope of our invention though it has not been found to be as useful and practical as polymeric material.

Having described the structure of our cone collecting tool its use may be understood.

A tool is formed according the foregoing specification and manually moved to the location of a pine cone to be collected. The tool is placed with the entry structure **12**

resting on and immediately above the subject cone. The tool then is grasped by manipulating handles **11** and forced downwardly until the lower edge of annular peripheral rim **24** rests on the surface supporting the subject pine cone. As the entry structure **12** moves downwardly relative to the pine cone therebeneath, portions of the fingers **25** will be deformed by the pine cone and the cone will ultimately pass through the orifice defined by spaces **28,29**, move into the medial channel **14** of body tube **13**. As the cone moves through the entry structure **12** the fingers **25** of entry structure **12** by reason of retentent memory, will return to their null state that existed before deformation and the tool will be ready for a second similar pine cone collecting operation as described.

The collected cone in medial channel **14** of the cylindrical tube **13** will be retained within the tube **13** because there is no external force in the body channel **14** upon the cone to allow it to deform fingers **25** to move outwardly therepast and the force of gravity acting upon the cone and any other cones in the body channel **14** is not sufficient to cause such action.

The cone collecting process then is continued in a

similar fashion until a quantity of cones is carried within medial channel **14** of the body **10**. At this point when the collecting operation has been completed or the body **10** reasonably filled with pine cones, the tool is manually moved to a disposition sight spacedly above the area where cones are to be deposited. The tool is manually manipulated to turn it upside-down and the pine cones carried in medial channel **14** of the body **10** will move by action of gravity outwardly from the open upper end portion **15** of body **10** and be deposited somewhat vertically therebelow.

In using the instant tool it is to be noted that both the tool and a pine cone to be collected thereby may easily be moved relative to each other to better position a pine cone in a loading position or to better accomplish the passage of the pine cone through the entry structure **12** and into the tool body **10**. This movement, the entire loading operation and unloading operation may be accomplished by the user while in a standing position and without any manual contact with the pine cones in the entire collection and disposition process.

The foregoing description of our invention is

necessarily of a detailed nature so that a specific embodiment of its best known mode might be set forth as required, but it is to be understood that various modifications of detail, rearrangement and multiplication of parts might be resorted to without departing from its spirit, essence or scope.

Having thusly described our invention, what we desire to protect by letters patent and

What we claim is: